

#### § 167.45-10

an exposed deck, branches shall be provided so that the hose connections necessary to comply with the foregoing be distributed on both sides of the nautical school ship. The fire hose shall be connected to the outlet at all times, except on open decks where the location of the fire hydrants is such that no protection is afforded for the hose in heavy weather. The fire hose may be temporarily removed from the hydrant when it will interfere with the handling of cargo.

(e) Outlet openings shall have a diameter of not less than 1½ inches and shall be fitted with suitable hose connections and spanners. The arrangement of the fire hydrant shall be limited to any position from the horizontal to the vertical pointing downward, so that the hose will lead downward or horizontally, in order to minimize the possibility of kinking. In no case will a hydrant arranged in a vertical position with the outlet pointing upward be accepted.

(f) Fire pumps shall be fitted on the discharge side with relief valves set to relieve at 25 pounds higher than the pressure necessary to maintain the requirements of paragraph (c)(1) of this section and a pressure gage to indicate the pressure on the fire main. If the fire pumps operating under shut-off conditions are not capable of producing a pressure exceeding 125 pounds per square inch, the relief valve may be omitted.

(g) Each section of fire hose used after January 1, 1980 must be lined commercial fire hose that conforms to Underwriters' Laboratories, Inc. Standard 19 or Federal Specification ZZ-H-451E. Hose that bears the label of Underwriters' Laboratories, Inc. as lined fire hose is accepted as conforming to this requirement. Each section of replacement fire hose or any section of new fire hose placed aboard a vessel after January 1, 1977 must also conform to the specification required by this paragraph.

(h) Each fire hydrant must have at least one length of firehose. Each firehose on the hydrant must have a combination solid stream and water spray

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firehose nozzle that is approved under subpart 162.027 of this chapter.

[CGFR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGFR 60-36, 25 FR 10642, Nov. 5, 1960; CGD 74-60, 41 FR 43152, Sept. 30, 1976; CGD 76-086, 44 FR 2394, Jan. 11, 1979]

#### § 167.45-10 Couplings on fire hose.

The couplings on fire hose shall be of brass, copper, or composition material. All hydrants shall be provided with suitable spanners.

#### § 167.45-15 Capacity of pipes and hose.

The capacity of the pipes and hose leading from the pumps shall in no case be less than that of the discharge opening of the pump: *Provided, however,* That the pipe and hose shall in no instance be less than 1½ inches in internal diameter.

#### § 167.45-20 Examination and testing of pumps and fire-extinguishing equipment.

The inspectors will examine all pumps, hose, and other fire apparatus and will see that the hose is subjected to a pressure of 100 pounds to the square inch at each annual inspection and that the hose couplings are securely fastened.

#### § 167.45-25 Fire mains and hose connections.

All pipes used as mains for conducting water from fire pumps on nautical school ships shall be of steel, wrought iron, brass, or copper with wrought iron brass, or composition hose connections.

#### § 167.45-30 Use of approved fire-fighting equipment.

Portable fire extinguishers or fire-extinguishing systems which conform to the specifications of the Navy or Coast Guard, or their approved equivalent, may be accepted for use on nautical school ships.

#### § 167.45-40 Fire-fighting equipment on nautical school ships using oil as fuel.

Steam-propelled nautical school ships burning oil for fuel shall be fitted with the fire-fighting equipment of the following type and character:

(a) In each boiler room and in each of the machinery spaces of a nautical school ship propelled by steam, in which a part of the fuel-oil installation is situated, 2 or more approved fire extinguishers of the foam type of not less than 9.5 liters (2½ gallons) each or 2 or more approved fire extinguishers of the carbon dioxide type of not less than 33 kilograms (15 pounds) each must be placed where accessible and ready for immediate use. On a nautical school ship of 1,000 gross tons and under, only 1 of the fire extinguishers may be required.

(b) In boiler and machinery spaces, at least 2 fire hydrants must have a fire-hose of a length that allows each part of the boiler and machinery spaces to be reached by water from a combination solid stream and water spray fire-hose nozzle.

(c) Each firehose under paragraph (b) of this section must have a combination solid stream and water spray fire-hose nozzle that meets subpart 162.027 of this chapter. Combination nozzles and low-velocity water spray applicators previously approved under subpart 162.027 of this chapter may remain so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection.

(d) On every steam propelled nautical school ship of over 1,000 gross tons having one boiler room there shall be provided one fire extinguisher of the foam type of at least 40 gallons rated capacity or one carbon dioxide (CO<sub>2</sub>) extinguisher of at least 100 pounds. If the nautical school ship has more than one boiler room, an extinguisher of the above type shall be provided in each boiler room. On every steam propelled nautical school ship of 1,000 gross tons and under, foam type fire extinguishers of at least 20 gallons rated capacity or carbon dioxide (CO<sub>2</sub>) extinguishers of at least 50 pounds shall be used. Extinguishers fitted shall be equipped with suitable hose and nozzles on reels or other practicable means easy of access, and of sufficient length to reach any part of the boiler room and spaces containing oil-fuel pumping units.

(e) All nautical school ships propelled by internal-combustion engines shall be equipped with the following foam

type or carbon dioxide type fire extinguishers in the machinery spaces:

(1) One approved 12-gallon foam-type extinguisher or one approved 35-pound carbon dioxide type extinguisher.

(2) One approved 2½-gallon foam-type, or one approved 15-pound carbon dioxide type extinguisher for each 1,000 B. H. P. of the main engines, or fraction thereof. The total number of fire extinguishers carried shall not be less than two and need not exceed six.

(3) When a donkey boiler fitted to burn oil as fuel is located in the machinery space, there shall be substituted for the 12-gallon foam type or 35-pound carbon dioxide type fire extinguisher required either one 40-gallon foam type or one 100-pound carbon dioxide type fire extinguisher.

(f) In this section any reference to an approved fire extinguisher means either approved by the Coast Guard or the Navy.

[CGFR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGD 76-086, 44 FR 2394, Jan. 11, 1979; CGD 95-027, 61 FR 26010, May 23, 1996]

#### § 167.45-45 Carbon dioxide fire-extinguishing system requirements.

(a) When a carbon dioxide (CO<sub>2</sub>) smothering system is fitted in the boiler room, the quantity of carbon dioxide carried shall be sufficient to give a gas saturation of 25 percent of the gross volume of the largest boiler room from tank top to top of the boilers. Top of the boilers is to be considered as the top of the shell of a Scotch or leg type of boiler, and the top of the casing or drum, whichever is the higher, on water-tube boilers. The quantity of carbon dioxide required may be determined approximately by the following formula:

$$W = \frac{L \times B \times D}{36} \quad (1)$$

where:

W=the weight of CO<sub>2</sub> required in pounds.

L=the length of the boiler room in feet.

B=the breadth of the boiler room in feet.

D=the distance in feet from tank top or flat forming lower boundary to top of boilers.

(b) When a carbon dioxide (CO<sub>2</sub>) smothering system is fitted in the machinery space of a nautical school ship